

THE GENUS *TRYONICUS* SHAW FROM AUSTRALIA AND NEW CALEDONIA
(DICTYOPTERA : BLATTARIA : BLATTIDAE : TRYONICINAE).

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ABSTRACT

The genus *Tryonicus*, which was previously known from one species, *T. parvus* (Tepper), in southeastern Australia is revised. Two new species, *T. monteithi* and *T. mackerrasae* are described from north Queensland. The genus is newly recognized from New Caledonia by the transfer of three species of *Stylopyga* to *Tryonicus*, viz. *T. angusta* Chopard, *T. rufescens* Chopard, and *T. vicina* Chopard. *Tryonicus* is redefined, its subfamily position is discussed, and a key is presented to both sexes of the six included species.

INTRODUCTION

The material on which this paper is based was loaned to me by the following museums and curators: ANIC — Australian National Insect Collection, CSIRO, Canberra, A.C.T., Australia; Dr D.C.F. Rentz and Mr John Balderson; MCZH — Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A.; Dr A.F. Newton; MHNB — Naturhistorisches Museum, Basel, Switzerland; Dr C. Baroni Urbani; QMBA — Queensland Museum, Brisbane, Australia; Dr G.B. Monteith; UQLA — University of Queensland, St. Lucia, Brisbane, Australia; Miss M. Schneider through Dr G.B. Monteith.

Genus *Tryonicus* Shaw

Tryonicus Shaw, 1925, p. 202; McKittrick and Mackerras, 1965, p. 224; Mackerras, 1968, p. 556.

Type-species: *Tryonicus montanus* Shaw [synonym of *Tryonicus parvus* (Tepper)], by monotypy, Princis, 1966, p. 559.

REMARKS

Species of *Tryonicus* are found, at reasonable altitudes, on the ground under stones and bits of wood in wet rain forest. They are never found under bark or above ground on dead trees or logs like most other rainforest cockroaches (Monteith, pers. comm.).

AFFINITIES

McKittrick and Mackerras (1965) established the Tryonicinae and placed it between the

Lamproblattinae and Blattinae in the Blattidae. However, Princis (1966, p. 404) did not accept the Lamproblattinae or Tryonicinae, and synonymized both with Blattinae. Shaw (1925, p. 202) had earlier suggested that the genus be placed in the *Blatta* group of the Blattinae.

McKittrick and Mackerras (1965, p. 227) compared the spermathecae of *Lamproblattella albipalpus* (Lamproblattinae), *Blatta orientalis* (Blattinae), and *Eurycotis floridana* (Polyzosteriinae). According to them, the spermatheca of *Tryonicus parvus* (= *montanus*) is forked and one branch bears a round sclerotized, terminal expansion, whereas the other is wholly membranous, but is thicker than the common duct (Fig. 2L). When sclerotizations occur in spermathecae of the other species, supposedly they are elongate rather than round. Unfortunately these comparisons are based only on one species representing each of the subfamilies. *Tryonicus mackerrasae* n. sp. and *T. monteithi* n. sp. have unbranched spermathecae whose sclerotized reservoirs are elongate and straight (Fig. 6B, J), or elliptical or round (Figs. 3H, I, 6C, E, H). *Tryonicus* sp. I has a forked spermatheca but the small branch is about the same width as the common duct (Fig. 7E, G). The most unusual spermatheca occurs in *Tryonicus angusta* which has a reservoir that terminates in a sphere at one end and a club-shaped extension at the other (Fig. 8G). Although the spermathecae are variable, I believe that the other characters given by Mackerras (1968, pp. 513, 556) warrant retaining the subfamily Tryonicinae.

The oothecae of the Lamproblattinae differ markedly from those of the Blattinae and Polyzosteriinae, both of which have similar egg cases. A comparison of the oothecae of species of *Tryonicus* with those of related subfamilies might aid in placing the genus more unequivocally (Roth 1968, p. 87). Mackerras (1968, p. 560) unsuccessfully tried to rear *T. parvus* but never obtained oothecae. I have seen one pinned female of *T. monteithi* which had started to make an ootheca, but not enough had been formed in the genital chamber to indicate the final shape of the keel, and nature of the lateral walls. However, the fragment suggested that the shape of the keel and walls are different from those of the Blattinae and Polyzosteriinae; the walls of the fragment contained masses of calcium oxalate crystals, which is characteristic of all Blattidae. Shaw (1925, p. 191) stated that the ootheca is not longitudinally fluted.

T. mackerrasae, *T. monteithi*, and *T. sp. 1* are more closely related to each other (T1 modified, and similarity in left male genital phallomere), than they are to either *T. parvus* and *T. angusta*. Male genitalia of *T. rufescens* and *T. vicina* were not available for comparison. The male genitalia and female spermathecae of the new Australian taxa are variable suggesting that these species are in a state of flux.

DIAGNOSIS

Eyes reduced, distance between them greater than that between antennal sockets, ocellar spots absent. Last maxillary palpal segment enlarged (Figs 2F, 3E, 4G). Male tegmina reduced in length, either narrow lateral pads (P1. 1A), or broad (normal width) with overlapping hind margins (P1. 1C, E), or completely absent (Fig. 8A); wings vestigial, much smaller than and hidden under the tegmina (Figs 2A, 4A), or absent (Fig. 8A). Female completely apterous (P1. 1B), or with small lateral tegmina and hind wings absent (P1. 1D, F). Ventral margins of femora armed as follows: Front femur: anterior margin with a few slender setae on basal half followed by a row of very small piliform setae, terminating in 1 or 2 large distal spines, posterior margin with 0-1 spines plus 1 distal, or completely unarmed; Mid femur: anterior margin, 0 plus 1 distal, or completely unarmed, posterior margin unarmed or, 0-2 plus 1 distal; Hind femur: anterior margin, 0 plus 1 distal, posterior margin, usually 1-3 (0 or 4-6 rare), plus 1 distal, or with 2 spines without a distal; geniculate spine on mid and hind femora, absent from front femur. Pulvilli small and apical,

or not clearly present on all segments, or completely absent; arolia absent (Mackerras stated that arolia are 'small or absent', but I have not seen this structure on any specimens; in her description of *T. parvus*, on which the generic description was based, she stated that arolia are absent, as was pointed out by Shaw); tarsal claws long, symmetrical, simple. First abdominal tergite (?) with (P1. 1C), or without a medial specialization; female abdominal tergites unspecialized. Male subgenital plate symmetrical or practically so, styles similar, small, cylindrical, widely separated (Fig. 2D). Spermatheca with a long convoluted duct, the terminal region forked (Figs 2L, 7E, G), or unbranched, the enlarged reservoir straight (Fig. 6B), or with an elliptical (Fig. 6C) or round enlargement (Fig. 3H), or with both an elliptical or round swelling (Fig. 8G). Basivalvulae of female genitalia fused with the spermathecal plate forming a single strong sclerite surrounding the spermathecal opening (Fig. 6A). Male genital phallomere L2v may be intraspecifically variable (Fig. 5A-D). Proventriculus as in Fig. 6G.

KEY TO SPECIES OF *TRYONICUS**

1. Males 2
Females 7
2. Tegmina present 3
Tegmina absent (New Caledonia) *angusta*
3. Tegmina reduced to widely separated, narrow lateral pads which extend only to about the hind margin of the mesonotum or metanotum. Hind wings present (vestigial) or absent 4
Tegmina reduced in length reaching to about hind margin of T2, or middle of T3, their widths normal with hind margins overlapping at midline (P1. 1C, E). First abdominal tergite with a median specialization 5
4. Tegmina short reaching to about hind margin of mesonotum. Hind wings absent 6
Tegmina longer, extending slightly beyond hind margin of metanotum (P1. 1, A). Hind wings very narrow (Fig. 2A), hidden under tegmina. First abdominal tergite unspecialized. (Australia) .. *parvus*
5. Small (pronotum length \times width, 2.0-2.6 \times 2.8-3.1; tegmen length, 2.2-3.0). Yellowish brown, palps pale. Hind margin of supraanal

*The male of *Tryonicus* sp. 1 keys out to couplet 5 (see remarks under that species)

- plate concavely excavated (Fig. 3G).
 (Australia) *mackerrasae*
 Larger (pronotum length \times width, 3.2–4.3 \times 4.0–5.5; tegmen length, 3.1–4.5). Blackish or dark brown (tegmina may have a metallic sheen), palps dark. Hind margin of supraanal plate convexly rounded (Fig. 4D), or with a weak medial indentation (Fig. 4B).
 (Australia) *monteithi*
6. Tegmina with anterior (outer) margin straight, posterior (inner) border convex, apex truncate. (New Caledonia).....*rufescens*
 Tegmina narrower, tapering to an acute or subacute apex. (New Caledonia) *vicina*
7. Tegmina and wings absent (P1. 1,B) 8
 Tegmina reduced to small lateral pads (P1. 1,D,F), wings absent 9
8. Hind margin of T7 sinuous (Fig. 2E).
 (Australia)*parvus*
 Hind margin of T7 straight (Fig. 8A). (New Caledonia).....*angusta*
9. Tegmina very narrow, tapering to an acute or subacute apex. (New Caledonia) *vicina*
 Tegmina slightly wider, apically truncate or subtruncate 10
10. Blackish or blackish brown; head, antennae, and palps dark brown. Pronotum length \times width, 3.0–4.0 \times 3.9–4.9; tegmen length \times width, 1.0–2.0 \times 1.2–1.7. (Australia)
 *monteithi*
 Coloration not as above..... 11
11. Reddish brown; head blackish brown, antennae and palps pale yellowish. Pronotum length \times width, 2.6 \times 4.0; tegmen length \times width, 1.7 \times 0.8. (New Caledonia).....
 *rufescens*
 Yellowish brown; head not darker than rest of body; palps pale, antennae slightly darker. Pronotum length \times width, 2.0–2.3 \times 2.9–3.3; tegmen length \times width, 0.7–1.0 \times 0.8–0.9.
 (Australia) *mackerrasae*

DISTRIBUTION

Of the three species of *Tryonicus* known from Australia, *T. parvus* is the most southern and was previously known from eastern New South Wales, and Lamington National Park in southeastern Queensland near the New South Wales border (Mackerras 1968). New records extend the range 800 km north to Eungella, central Queensland. *T. mackerrasae*, *T. monteithi* and *T. sp. 1* occur in

mountains of the wet tropical zone of north Queensland. *T. mackerrasae* is most widespread, extending from the Kirrama Range north to Cape Tribulation. The other two have smaller ranges within the same zone and all three are sympatric in the mountains behind Mossman (Fig. 1).

Before *Tryonicus* was recognized from New Caledonia, Dr G.B. Monteith wrote me (June 7, 1984) that 'The reason I went to New Caledonia (an old Gondwana plate fragment with many ancient biogeographic links with Australia) was to investigate the summit faunas of some of its mountains. One of the montane relicts I suspected

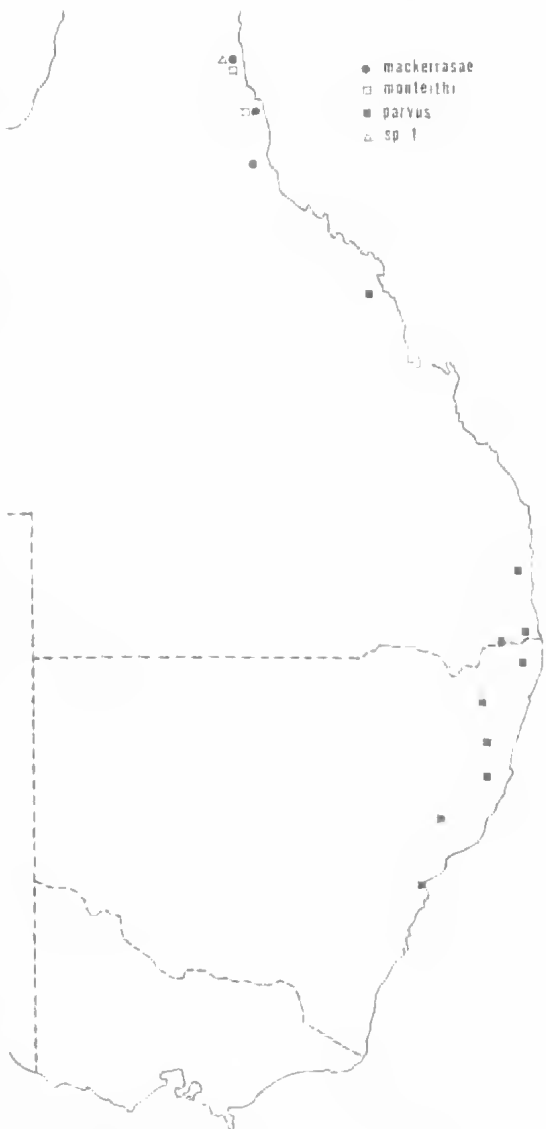


FIG. 1: Distribution of species of *Tryonicus* in Australia.

might be there was *Tryonicus* and I was delighted to confirm this'. There are many examples of links between primitive elements of the Australian flora and fauna and that of New Caledonia (e.g. Holloway 1979; Monteith 1980). The new Caledonia species all occur above 600 m altitude. *T. angusta* is widespread over the northern two-thirds of the island, but *T. rufescens* and *T. vicina* are still known only from their type localities at Mt Ignambi and Mt Humboldt, respectively at the north and south ends of the island.

***Tryonicus parvus* (Tepper)**
(Figs 2A-L, Plate 1A, B)

Periplaneta parva Tepper, 1895, p. 162 (female).

Blatta parva (Tepper), Kirby, 1910, p. 564.

Platyzosteria parva (Tepper), Shelford, 1910, p. 7 (as doubtful species).

Cutilia parva (Tepper), Shaw, 1925, p. 191.

Melanozosteria parva (Tepper), Princis, 1966, p. 576.

Tryonicus parvus (Tepper), Mackerras, 1968, p. 557, figs 50-57, 58, 98, 99, 103 (male and female).

Tryonicus montanus Shaw, 1925, p. 202, figs 24-26;

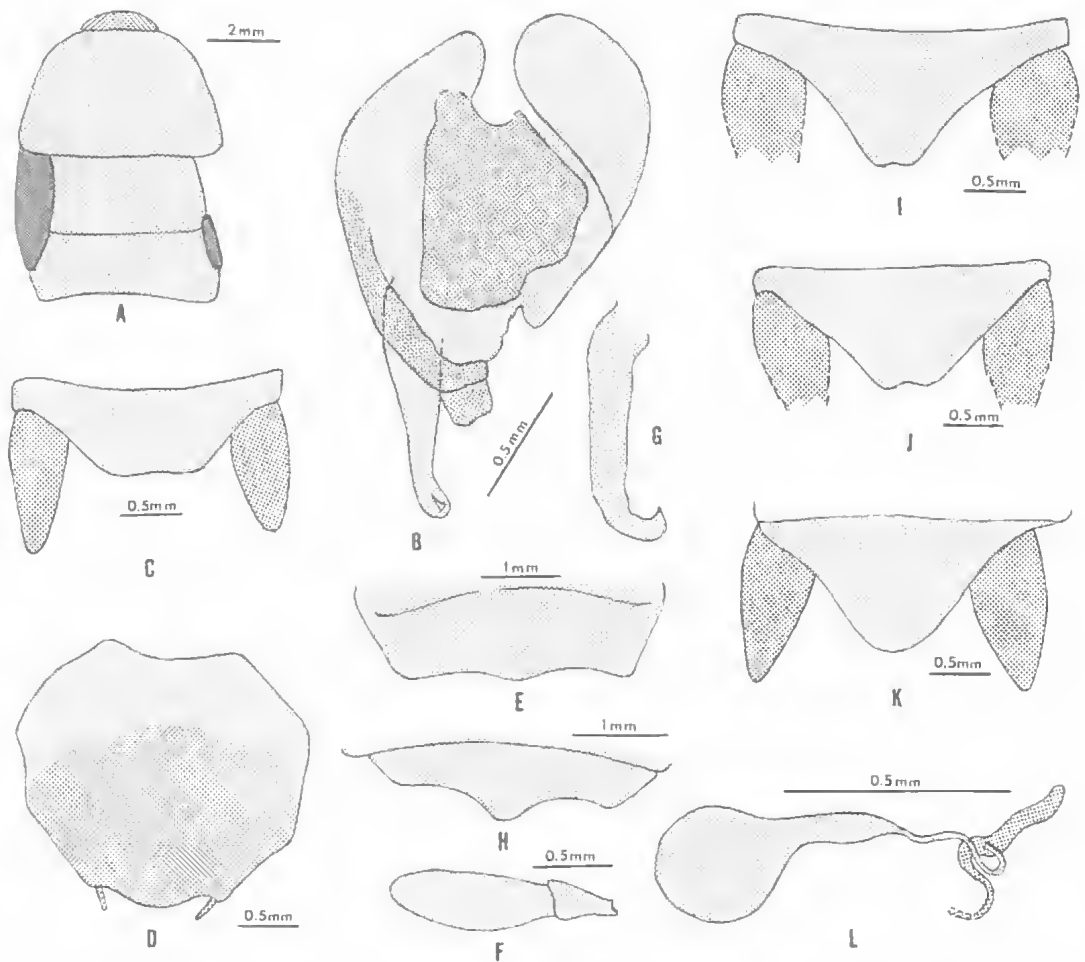


FIG. 2: *Tryonicus parvus* (Tepper). A-G, Male: A, Thorax (right tegmen removed to show small hind wing); B, Left genital phallomere; C, Supraanal plate; D, Subgenital plate; E, Seventh abdominal tergite; F, Maxillary palpal segments 4 and 5; G, Genital phallomere L3; H, Nymph, seventh abdominal tergite. I-L, Females: I-K, Supraanal plates; L, Terminal portion of spermatheca. Localities: A-E, H, Bald Mt. area, Qld.; F, Gibraltar Range, via Glenn Innes, N.S.W.; G, Lamington National Park, Qld.; I, Barrington House, N.S.W.; J, Eungella Nat. Park, Qld.; K, L, National Park, McPherson Range, Qld.

McKittrick and Mackerras, 1965, p. 224, figs 2, 9a, 9b, 10; Mackerras, 1968, p. 557; Princis, 1966, p. 559.

MATERIAL EXAMINED

The holotype was not examined; it is a ♀, from Sydney, N.S.W. and is in the South Australian Museum.

QUEENSLAND. QMBA: National Park, Q., Macpherson Ra., ♂ holotype of *Tryonicus montanus* Shaw (no. 0/2872); (labelled *montana*), xii.1918, (additional data from Shaw, 1925, p. 203; Lamington Plateau, 3000 ft., 1917–1918); National Park, Lamington, Q., 2♀ paratypes of *Tryonicus montanus* Shaw (genitalia of one mounted between coverslips by M.J. Mackerras), 3000 ft., i.1917, H. Tryon; same locality and elevation, 1♀ paratype of *T. montanus*, i.iii.1921, A.J. Turner. UQLA: Eungella Nat. Pk., via Mackay, N.Q., 1♀ (slide 10), 5.viii.1968, B. Cantrell; Conondale, sites 12–13, 1♀, 29.xi.1974, G.B. Monteith; Lamington Nat. Pk., S.E. Qld., *Nothofagus* forest, 3800 ft., 1♂ (slide 8), 1 nymph, 30.i.1965, G. Monteith; Bald Mt. area, via Emu Vale, SE. Qld., 3–4000 ft., 17–22.v.1969, 1♂ (slide 12), B. Cantrell, 2♂, 1 nymph, G.B. Monteith; no data, 1♂ (genitalia mounted between coverslips by M.J. Mackerras). MCZH: Nat. Park, Q., McPherson Rge., 3–4000 ft., 1♀, March 1932, Darlington. ANIC: Lamington N.P., 1♂ (genitalia between coverslips on pin), 1 nymph (ex colony 212, 1.v.1965 (both det. as *parvus* by Mackerras).

NEW SOUTH WALES. UQLA: Barrington House, via Salisbury, 1♂ (slide 9), 26–28.xii.1965, T. Weir. The following were collected by G. Monteith: Carrai Plateau, via Kempsey, 1♂, 3–5.i.1967; Gibraltar Range, via Glen Innes, rain forest, 3♂, 27–29.xii.1972; Night Cap Track, Whian Whian S.F., via Dunoon, 1 nymph, 25.xi.1972. (1♂ retained at MCZ). ANIC: Ebor, 1♀ (genitalia between coverslips on pin), 21.iii.1954, E.F. Riek (det. as *parvus* by Mackerras).

DESCRIPTION

Mackerras (1968, p. 557) gave a complete description of *parvus*. The following should distinguish this species from the new taxa.

MALE. Tegmina greatly reduced to narrow, widely separated lateral pads extending slightly beyond hind margin of metanotum; wings much smaller, narrow, elongated, completely hidden under tegmina (Figs 2A, Pl. 1A). First abdominal tergite unspecialized. Hind margin of seventh abdominal tergite sinuous (Fig. 2E). Supraanal plate transverse, hind margin almost straight (Fig. 2C), or weakly convex. Interstyler margin of subgenital plate convex (Fig. 2D). Left genital phallomere as in Fig. 2B. Anteroventral margin of front femur with 2 distal spines, posterior margin with 1 distal; Mid femur, anteroventral margin, 0 plus 1 distal, posteroventral, 0–2 plus 1 distal; Hind femur, anteroventral with 0 plus 1 distal, posteroventral, usually 2 or 3 (rarely 0, or 4–6)

spines plus 1 distal. Pulvilli small, apical. Mainly black, shining. Antennae with a few pale segments in the middle third.

FEMALE. Apterous (Pl. 1B). Supraanal plate trigonal, apex rounded (Fig. 2K), or weakly (2I) or more distinctly indented (Fig. 2J). Spermathecal reservoir round, bulbous, arising from the long convoluted duct preapically, the region beyond the insertion wider than the long duct (Fig. 2L).

MEASUREMENTS (mm) (♀ in parentheses). Body length, 12.0–14.0 (11.0–16.7); pronotum length × width, 3.2–3.8 × 4.7–5.8 (3.2–3.7 × 4.8–5.3); tegmen length × width, 2.7–3.5 × 1.2–1.7.

NYMPH. Resembles adult female but hind margin of seventh abdominal tergite is more deeply sinuous (Fig. 2H).

Tryonicus mackerrasae, n. sp. (Figs 3A–I, Plate 1, C, D)

Tryonicus n. sp. A and B, Mackerras, 1968, p. 561. (female).

MATERIAL EXAMINED

HOLOTYPE: ♂, Kiramma State Forest, via Cardwell, N. Qld., 17–18.viii.1966, G. Monteith (labelled *Tryonicus* sp. nov., by Mackerras); in the QMBA (T.9526).

PARATYPES: Queensland. UQLA: Crater Lake Nat. Park, via Ravenshoe, N.Q., 1♂ (slide 7), 1♂ (slide 13), 2♂, 1♀ (slide 14), 1♀ (slide 15), 3♀, 9.viii.1968, B. Cantrell (1♂ and 1♀ retained in MCZ); Millaa Millaa Falls, via Millaa Millaa, N.Q., 1♂, 10–11.xii.1966, B. Cantrell; same data as holotype, 1♀ (slide 17); Mt. Edith, 2 ml. N. of Tinaroo Dam, N.Q., 3500 ft., 1♀, 2.vi.1972, G.B. Monteith. QMBA: Bellenden Ker, Cableway Tower No. 3, 1000 m, Pyrethrum/trees, 1♀, 25.ix.1981, G. Monteith; Bellenden Ker Range, N.Q., Cable Tower No. 3, 1054 m, 1♂ (slide 39), 25–31.x.1981, Earthwatch/Qld Mus.; Mt. Fisher, 7 km SW Millaa Millaa, N.Q., Kjellberg Rd., 1000 m, 1♂ (slide 32), 4♂, 1♀, 1♀ (slide 33), 3.v.1983, G.B. Monteith and D.K. Yeates; The Bluff, 11 km W. of Mossman, N.E. Qld., 800–1300 m, 1♂ (slide 24), 2.xi.1983, Monteith, Yeates, and Thompson; 4.5 km W. of Cape Tribulation (site 9), 760 m, Pyrethrum knockdown, R.F., 1♂, 29.ix.1982, Monteith, Yeates, and Thompson; Mt. Demi, 7 km S.W. of Mossman, N.E. Qld., 1100 m, 1♂ (slide 29), 29.x.1983, D.K. Yeates and G.I. Thompson; 21 km S. of Atherton, N.E. Qld., 1040–1100 m, Pyrethrum knockdown in R.F., 1♂, 5.xi.1983, D.K. Yeates and G.I. Thompson. ANIC: 'Dunbulla' (= Danbulla), 2♀, 30.vi.1951, J.F. Gay (sp. A of Mackerras).

DESCRIPTION

MALE. Tegmina reduced in length reaching to about hind margin of T2, or middle of T3, normal in width, hind margins overlapping; hind wings much smaller, folded, curved, apices directed

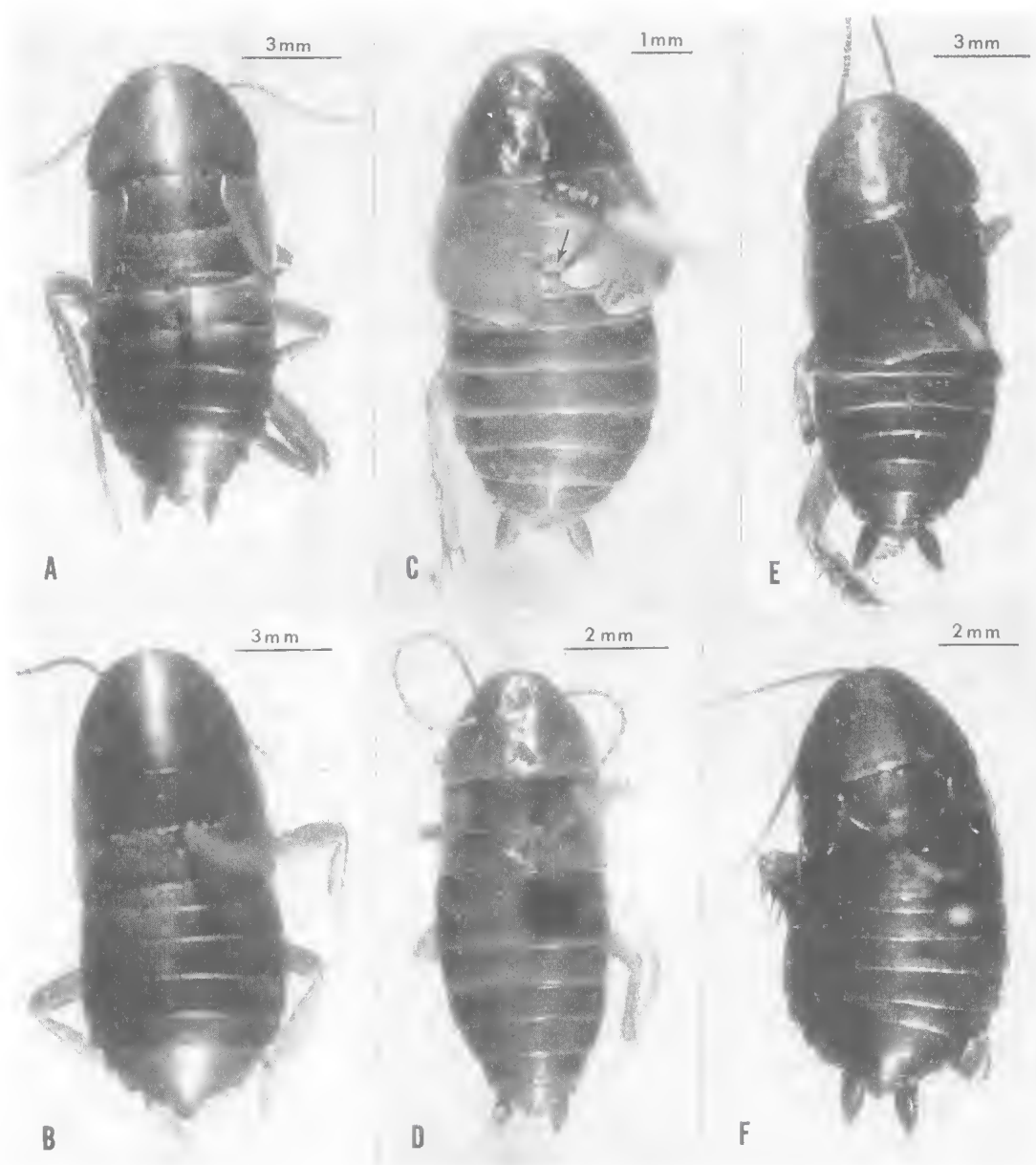


PLATE 1. *Tryonicus* spp., habitus of males (upper row) and females (lower row). A, B, *T. parvus* (Tepper) (A from Gibraltar Range, via Glenn Innes, N.S.W.; B, from Conondale, Qld); C, D, *T. mackerrasae*, n. sp., male holotype and female paratype (both from Kirrama State Forest, Qld); E, F, *T. monteithi*, n. sp., male holotype (Bellenden Ker Range, Qld), and female paratype (Bartle Frere, NW Centre Peak). Arrow in Fig. C indicates position of gland on T1.

toward midline of abdomen where their tips almost touch setal specialization on T1 (Figs 3A, Pl. 1C). First abdominal tergite with dense setal tuft directed dorsally or dorsoposteriorly located in anteromedial fossa (Figs 3A, Pl. 1C), and partly hidden under metanotum. Hind margin of T7 straight. Supraanal plate transverse, lateral margins oblique, corners rounded, hind margin shallowly concave medially (Fig. 3C). Subgenital plate short, extending slightly beyond hind margin of supraanal plate, interstylar margin truncate or practically so (Fig. 3D). Front femur:

anteroventral margin with row of slender setae on basal half followed by row of very small piliform setae, terminating in 1 distal spine, posteroventral margin with single distal spine; Mid femur: anteroventral margin with 1 distal, posteroventral margin unarmed, or sometimes with 2 small spines, 1 distal spine present; Hind femur: anteroventral margin with 1 distal spine, posteroventral margin with 1 or usually 2 spines, plus 1 distal; genicular spine on mid and hind femurs. Arolia and pulvilli absent. Left genital phallomere as in Fig. 3B.

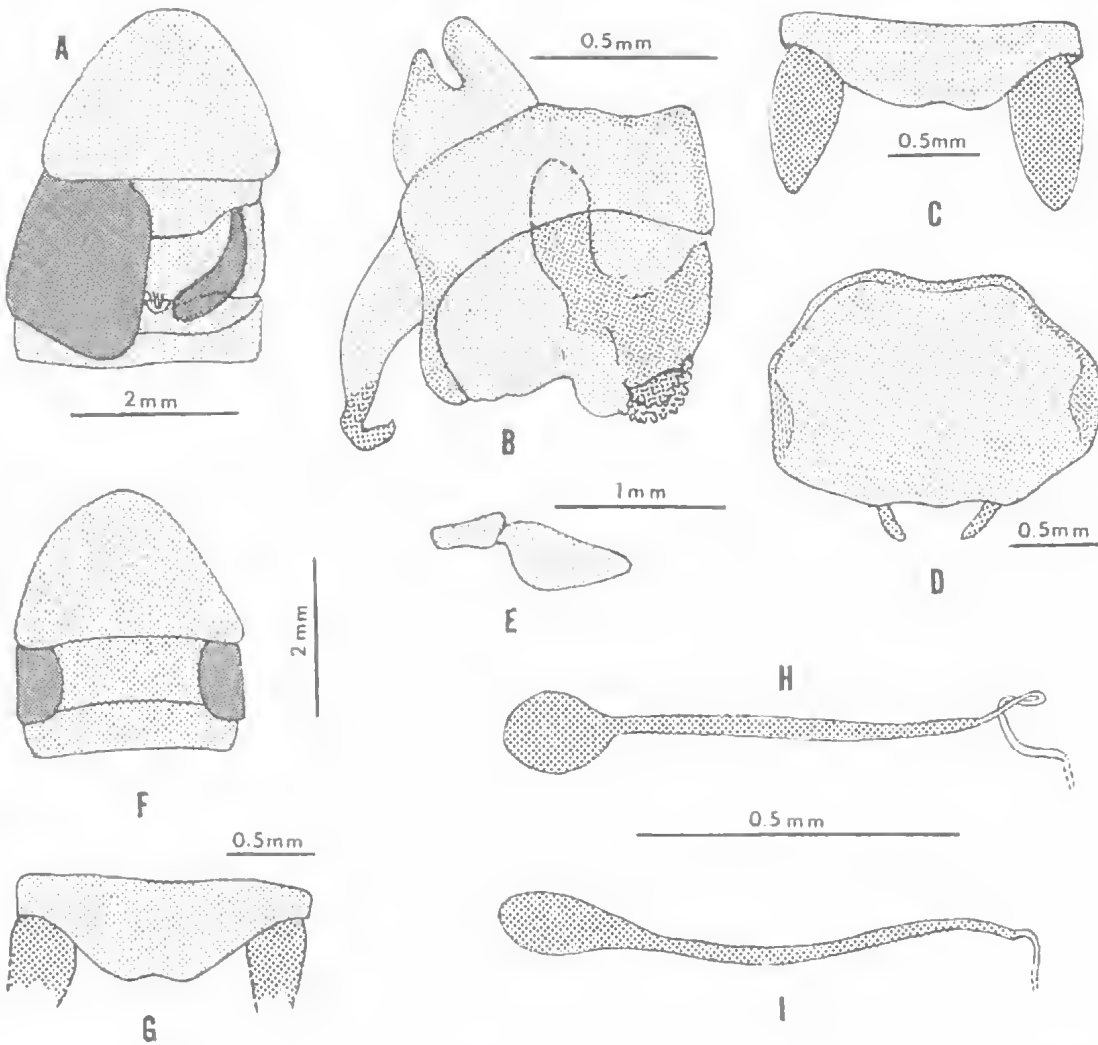


FIG. 3: *Tryonicus mackerrasae* n. sp. A-E, Males: A, Holotype, thorax (right tegmen removed to show hind wing); B-D, Paratype from Mt. Demi, 7 km SW of Mossman, Qld.: B, Left genital phallomere; C, Supraanal plate; D, Subgenital plate; E, Holotype, maxillary palpal segments 4 and 5. F-I, Female paratypes: F, Thorax (Mt. Edith, Qld.); G, H, Supraanal plate and terminal part of spermatheca (Mt. Fisher, 7 km SW of Millaa Millaa, Qld.); I, Terminal part of spermatheca (Kirrama State Forest, Qld.).

Coloration. Head reddish brown, palps and basal part of clypeus yellowish, labrum brownish yellow. Antennae light brown, without pale segments. Pronotum brown, lateral regions more broadly pale than anterior or posterior zones. Tegmina, abdominal tergites, and cerci, brownish, darker than paler legs and abdominal sternites.

FEMALE. Tegmina widely separated, small lateral pads, posterior margins convex, apices truncatae reaching (and a continuation of) hind margin of mesonotum, or sometimes slightly beyond (Figs 3F, Pl. 1, D); hind wings absent. Supraanal plate transverse, hind margin usually with a shallow mesal invagination (Fig. 3G), or sometimes narrowly truncate. Genital sclerites typical of the genus. Spermatheca unbranched with a round or elliptical reservoir at apex (Fig. 3H, I).

MEASUREMENTS (mm) (♀ in parentheses). Body length, 6.0–9.2 (6.3–8.4); pronotum length × width, 2.0–2.6 × 2.8–3.1 (2.0–2.3 × 2.9–3.3); tegmen length × width, 2.2–3.0 × 1.7–2.3 (0.7–1.0 × 0.8–0.9).

REMARKS

Mackerras (1968, p. 561) claimed to have 2 new species of *Tryonicus* which she did not name. Species A was represented by 2 small yellowish females taken at 'Dunbulla', Qld. (actually Danbulla), and have small lobiform tegmina. Species B was represented by a male and female which were small, yellowish brown, with pale yellow legs and palps, collected in Kirrama State Forest. These latter two specimens are the holotype and a paratype of the present species which I am dedicating to Dr Mackerras. According to her, the female is apterous, but it has small tegmina (Pl. 1D); she may have erred because the hind margins of the tegmina appear to be a continuation of the hind margin of the mesonotum. I have examined the specimens of her sp. A and they are both *mackerrasae*.

Tryonicus monteithi n. sp.

(Figs 4A–G, 5A–D, 6A–I, Plate 1E, F)

MATERIAL EXAMINED

HOLOTYPE: ♀, Bellenden Ker Range, N.Q., Summit TV Stn., 1560 m, 29.iv.–2.v.1983, G.B. Monteith and D.K. Yeates; in the QMBA (T.9540).

PARATYPES: Queensland. UQLA: Mt. Edith, 2 miles N. of Tinaroo Dam, N.Q., 1♂, 1♀ (slide 16), 2.vi.1972,

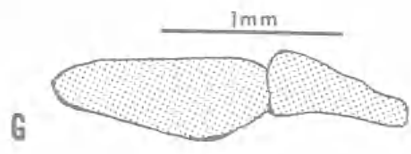
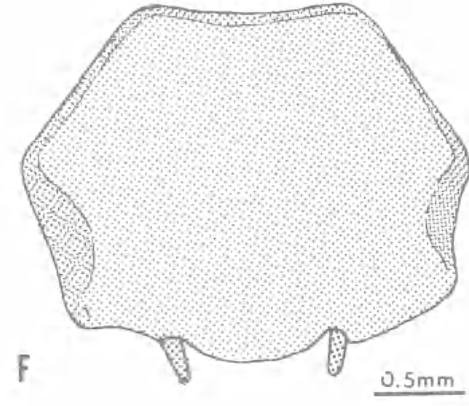
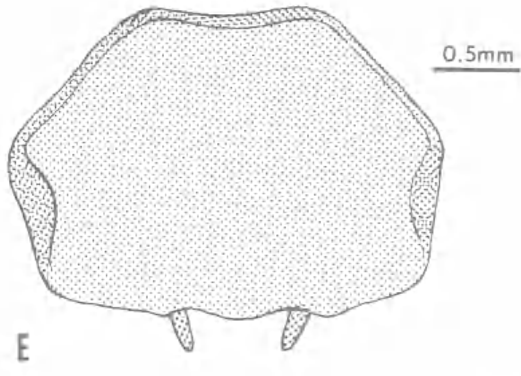
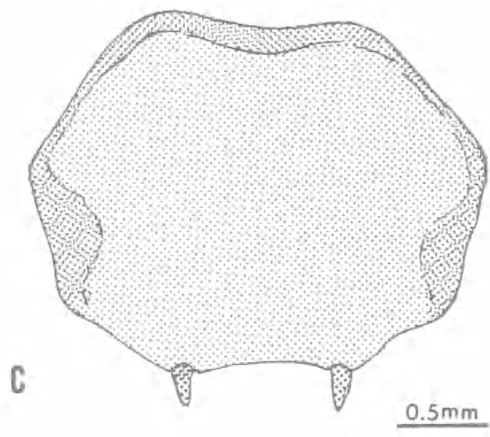
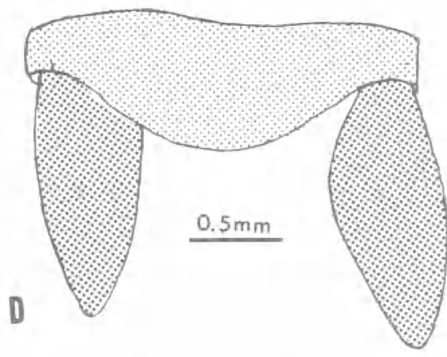
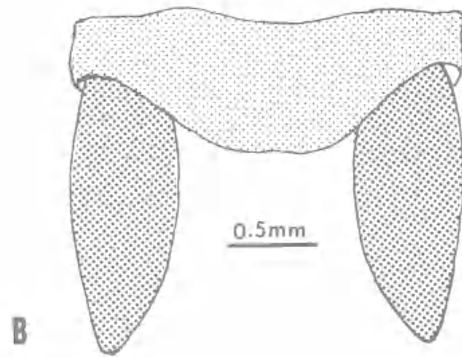
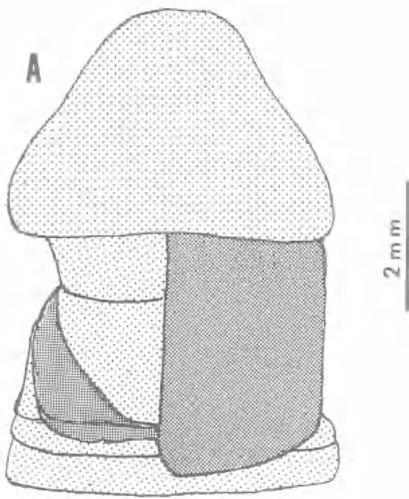
G.B. Monteith. QMBA: Mt. Bellenden Ker, Centre Peak Summit, 1500 m, 1♀ (slide 26), 1♀ (slide 30), 1♀ (slide 34), 10–12.iv.1979, G.B. Monteith; The Bluff, 11 km W. of Mossman, 1300 m, 1♀ (slide 27), 2.xi.1983, Monteith, Yeates, and Thompson; same locality as holotype, 1♀, 28.x.1983, Monteith, Yeates and Thompson, 1♂ (deposited in MCZ), 1♂ (slide 36) 2♂ (R.F., pitfall trap), 29.iv.–2.v.1983, G.B. Monteith and D.K. Yeates, 1♂ (R.F., pitfall trap), Apr.–Oct. 1982, S. Montague. The following were collected by Earthwatch/Qld. Mus.: same data as holotype, 1♀ (slide 25), 25–31.x.1981; Mt. Bartle-Frere, N.W. Centre Peak ridge, 1400–1500 m, 2♂, 1♀, 7–8.xi.1981; Mt. Bartle-Frere, Sth. Peak summit, 1620 m, 2♀ (one deposited in MCZ), 6–8.xi.1981; Bellenden Ker Range, Cable Tower 3, 1054 m, pitfall trap in rain forest, 1♂ (slide 35), 1♂ (slide 37), 1.xi.1981. The following were collected by G.B. Monteith and D. Cook: Bartle Frere, N.W. Centre Peak, 1400–1500 m, 1♂ (slide 22), 1♀, 1♀ (slide 23), 24.ix.1981; Nth. Bell Peak, 20 km S. Cairns, 900–1000 m, 1♂, 15–16.ix.1981.

DESCRIPTION

MALE. Tegmina reduced in length, reaching almost to hind margin of T2 or middle of T3, width normal, hind margins overlapping along midline of abdomen (Pl. 1E); hind wings further reduced, curved, apices directed toward median specialization on T1 (Fig. 4A). First abdominal specialization a tuft of setae in an anteromedial fossa or depression. Supraanal plate convexly rounded (Fig. 4D), sometimes with a weak indication of a broad medial indentation (Fig. 4B). Interstyler margin weakly convex (Fig. 4E, F), or subtruncate (Fig. 4C). Front femur: anteroventral margin with long slender setae on basal half, followed by row of short piliform setae, and 1 or rarely 2 distal spines, posterior margin with 1 distal spine; Mid femur: anteroventral margin with 1 distal, posteroventral with 1 or 2 spines plus 1 distal; Hind femur: anteroventral margin with 1 distal, posteroventral with 1, 2, or rarely 3 spines plus 1 distal; genicular spine on mid and hind femurs. Arolia and pulvilli absent. Terminal portion of L2v sclerite of left genital phallomere variable (Fig. 5A–D).

Coloration. Head black. Antennae may have some pale distal segments. Labrum reddish brown, basal half of clypeus yellowish, maxillary palps dark brown. Pronotum and tegmina black or brownish black very narrow lateral edges of former, and anterior margins of latter may be reddish brown, and the tegmina may have a

FIG. 4: *Tryonicus monteithi* n. sp., male paratypes from Queensland. A, Thorax (left tegmen removed to show reduced hind wing); B–F, Supraanal plate (with cerci) and subgenital plate (with styles); G, Segments 4 and 5 of maxillary palps. Localities: A, Mt. Bartle Frere; B and C, Bartle Frere, NW to Centre Peak; D and E, Bellenden Ker Range, Cable Tower 3; F and G, Bellenden Ker Range, Summit TV station.



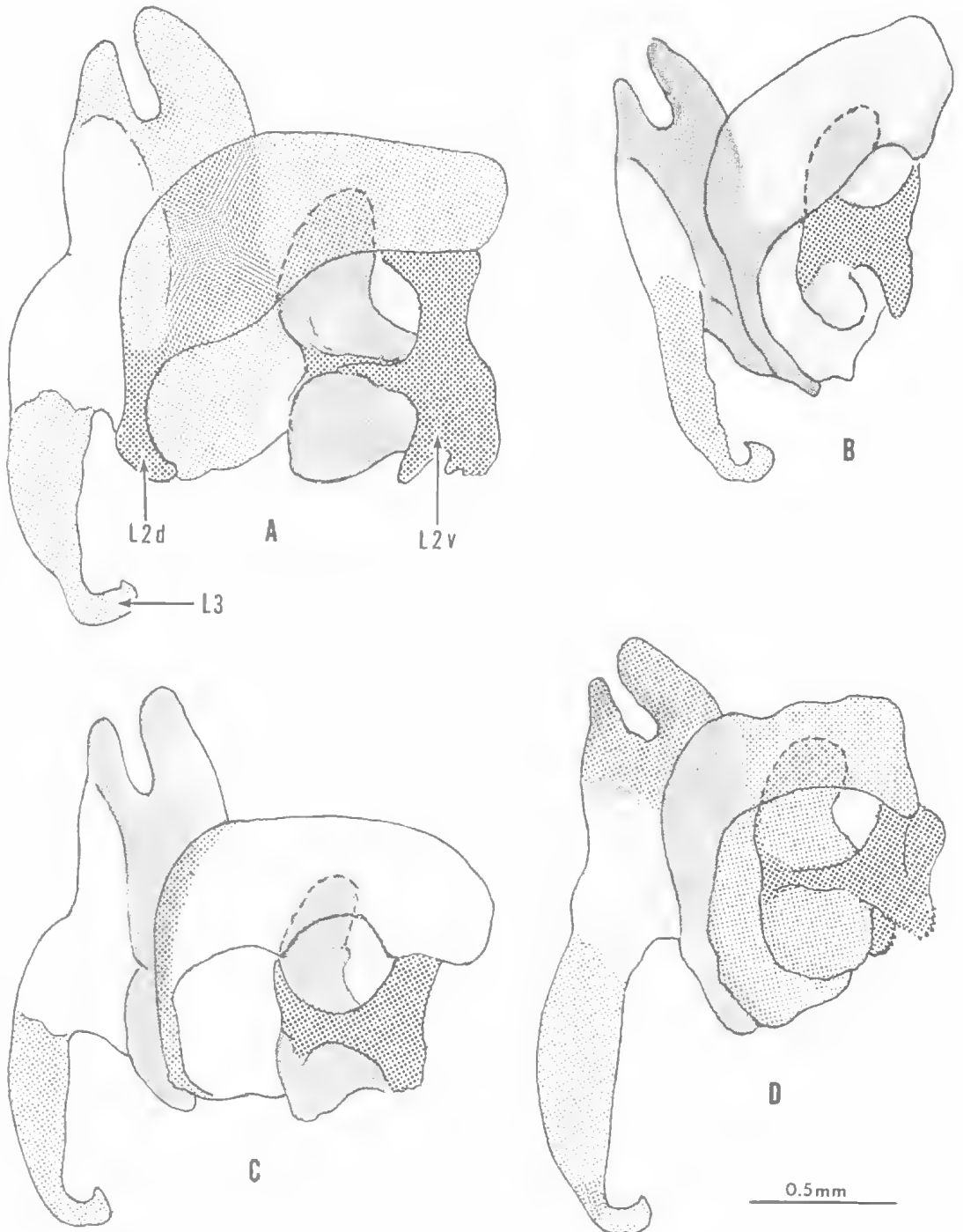


FIG. 5: *Tryonicus monteithi* n. sp., male paratypes from Queensland, left genital phallomeres. Localities: A-C, Bellenden Ker Range, Summit TV station (A), Cable Tower 3 (B and C); D, Bartle Frere, NW to Centre Peak. All to same scale.

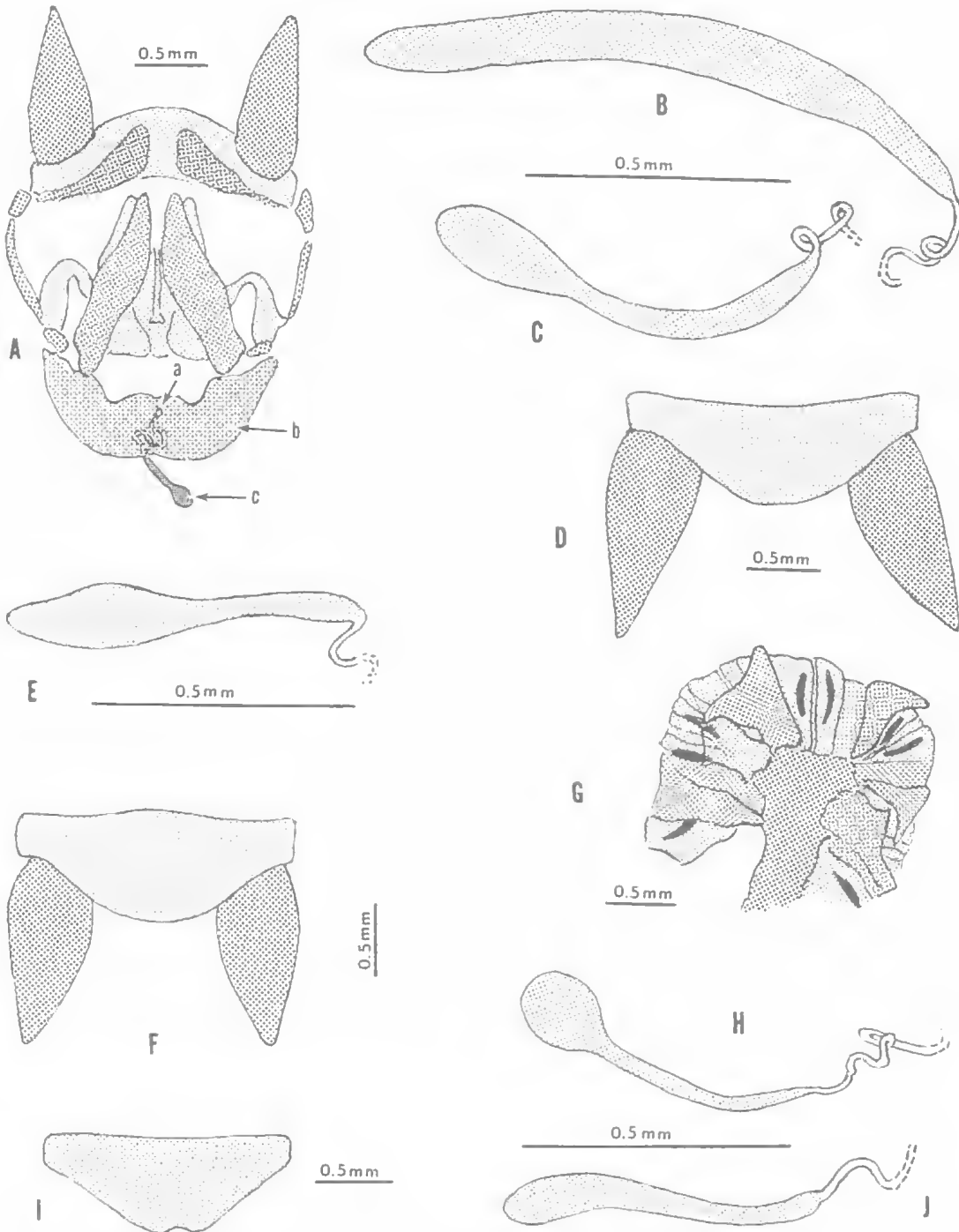


FIG. 6: *Tryonicus monteithi* n. sp., female paratypes from Queensland. A, Genitalia (a = spermathecal opening; b = basivalvula and spermathecal plate; c = spermatheca); B, C, Spermathecae. D, E, Supraanal plate and spermatheca, respectively; F-H, Supraanal plate, proventriculus (flattened), and spermatheca, respectively; I, J, Supraanal plate and spermatheca, respectively. Localities: A, Bellenden Ker Range, Summit TV station; B, Bartle Frere, NW Centre Peak; C, Mt. Bellenden Ker Centre Peak; D and E, Mt. Bellenden Ker Centre Peak summit; F-H, Mt. Edith, 2 miles north of Tinaroo Dam; I and J, The Bluff, 11 km west of Mossman.

metallic sheen. Abdominal tergites dark brown. Abdominal sternites and legs reddish brown, the former somewhat darker. Cerci dark brown (similar to abdominal tergites), or reddish brown (much lighter than tergites). Some specimens are dark reddish brown rather than blackish.

FEMALE. Tegmina lateral pads usually extending slightly beyond (Pl. 1, F), but sometimes level with hind margin of mesonotum. Hind margin of supraanal plate usually convexly rounded (Fig. 6A, D, F), sometimes with a weak concave indentation (Fig. 6I). Genitalia as in Fig. 6A. Spermatheca unbranched, terminal reservoir uniformly elongated (Fig. 6B, J), or with an elliptical or round distal swelling (Fig. 6C, E, H). Proventriculus as in Fig. 6G. Coloration dark brown or blackish brown.

MEASUREMENTS (mm) (- in parentheses). Body length, 11.0-13.7 (10.3-13.5); pronotum length \times width, 3.2-4.3 \times 4.0-5.5 (3.0-4.0 \times 3.9-4.9); tegmen length \times width, 3.1-4.5 \times 2.5-3.5 (1.0-2.0 \times 1.2-1.7).

REMARKS

Generally this is a larger and darker species than *mackerrasae*. Although the two taxa look quite different (size and color), many of the morphological characters are similar indicating a close relationship.

Of particular interest is the apparent polymorphism in the shape of the female spermatheca whose terminal reservoir varies from a straight tube more or less uniform in width, to one that has an elliptical or round distal swelling, the latter two forms occurring in *mackerrasae*. After preparing the first spermathecal slides I thought that the round terminal bulb in *mackerrasae*, and the straight tube in *monteithi* were good characters to differentiate the females of these taxa, especially in some specimens whose size was not clearly distinctive. However, additional preparations showed that the extent of spermathecal variation makes the use of this character doubtful; however, I have seen no *mackerrasae* spermathecae with a uniformly straight reservoir, unless I have misidentified some of the small females of *monteithi*. The taxonomic significance of spermathecal variation is unknown. Variability in the L2v of the male left genital phallomere also suggests that the species is in a fluid state.

Tryonicus sp. 1 (Fig. 7A-G)

MATERIAL EXAMINED

Queensland. QMBA: Mt. Demi, 7 km SW Mossman,

900-1000 m, 1 ♂ (slide 28), 26.v.1983, Monteith and Yeates; Mt. Lewis road, via Julatten, rain forest, 1 ♂ (slide 31), 12.x.1980, G.B. Monteith; Devil's Thumb area, 10 km NW Mossman, 1000-1180 m, 1 ♂ (slide 38), 9-10.x.1982, Monteith, Yeates, and Thompson. UQLA: Mt. Lewis, via Julatten, 3500 ft., 1 ♂ (slide 11), 4.v.1970, G.B. Monteith.

The above specimens look like miniature *monteithi* (particularly color), but I cannot place them unequivocally in that species.

DESCRIPTION

MALE. First abdominal tergite modified. Tegmina and wings as in *monteithi*. Hind margin of supraanal plate with a medial invagination (Fig. 7A) (usually rounded in *monteithi*). Subgenital plate as in Fig. 7B. L2v of left genital phallomere with a spine-like sclerotization; L2d with numerous small spines along the lateral posterior margin (Fig. 7C). Shining black (metallic), or dark brown; maxillary palps dark.

FEMALE. Tegmina as in *monteithi*. Hind margin of supraanal plate with a small shallow medial invagination (Fig. 7D, F). Spermatheca with terminal reservoir elongated, straight, without a bulbous swelling, inserted preapically, the small branch beyond the insertion about the same width as the common duct (Fig. 7E, G).

MEASUREMENTS (mm) (- in parentheses). Body length, 8.5-9.6 (8.5-10.3); pronotum length \times width, 3.0 \times 3.6-3.7 (2.6-3.1 \times 3.5-3.9); tegmen length \times width, 2.9-3.3 \times 2.3-2.6 (1.2-1.4 \times 0.9-1.2).

REMARKS

These specimens are somewhat small for *monteithi* and large for *mackerrasae*. Color is similar to *monteithi* (especially the dark palps and the metallic male). The male's left genital phallomere differs somewhat from those of the other 2 taxa, but this structure may be variable (at least in *monteithi*). The terminal portion of the female's spermatheca is elongated without a bulbous swelling, as in some *monteithi*, but it has a small branch beyond the point of insertion of the reservoir. *Tryonicus parvus* also has a branched spermatheca, but the large reservoir is round and bulbous, and the small branch is wider than the convoluted duct.

The male of *Tryonicus* sp. 1 keys out to couplet 5. In size and shape of hind margin of supraanal plate it is close to *mackerrasae*, but its coloration is similar to that of *monteithi*. The L2d and L2v of the male's left genital phallomere (Fig. 7C) differs somewhat from the two new species, but the L2v of *monteithi* may be variable (Fig. 5). The

size of the female is intermediate between *mackerrasae* and *monteithi* (couplets 10 and 11). Its spermatheca, unlike these two species, has a small branch beyond the insertion of the elongated distal reservoir (Fig. 7E, G), whose non-bulbous shape resembles that of some specimens of *monteithi* (Fig. 6B, J).

Whether these specimens are variants of *monteithi* and *mackerrasae*, or are a distinct taxon, requires a study of additional material. A male from Mt. Demi (same locality as the sp. 1 male from Mt. Demi) appears to be typical *mackerrasae*.

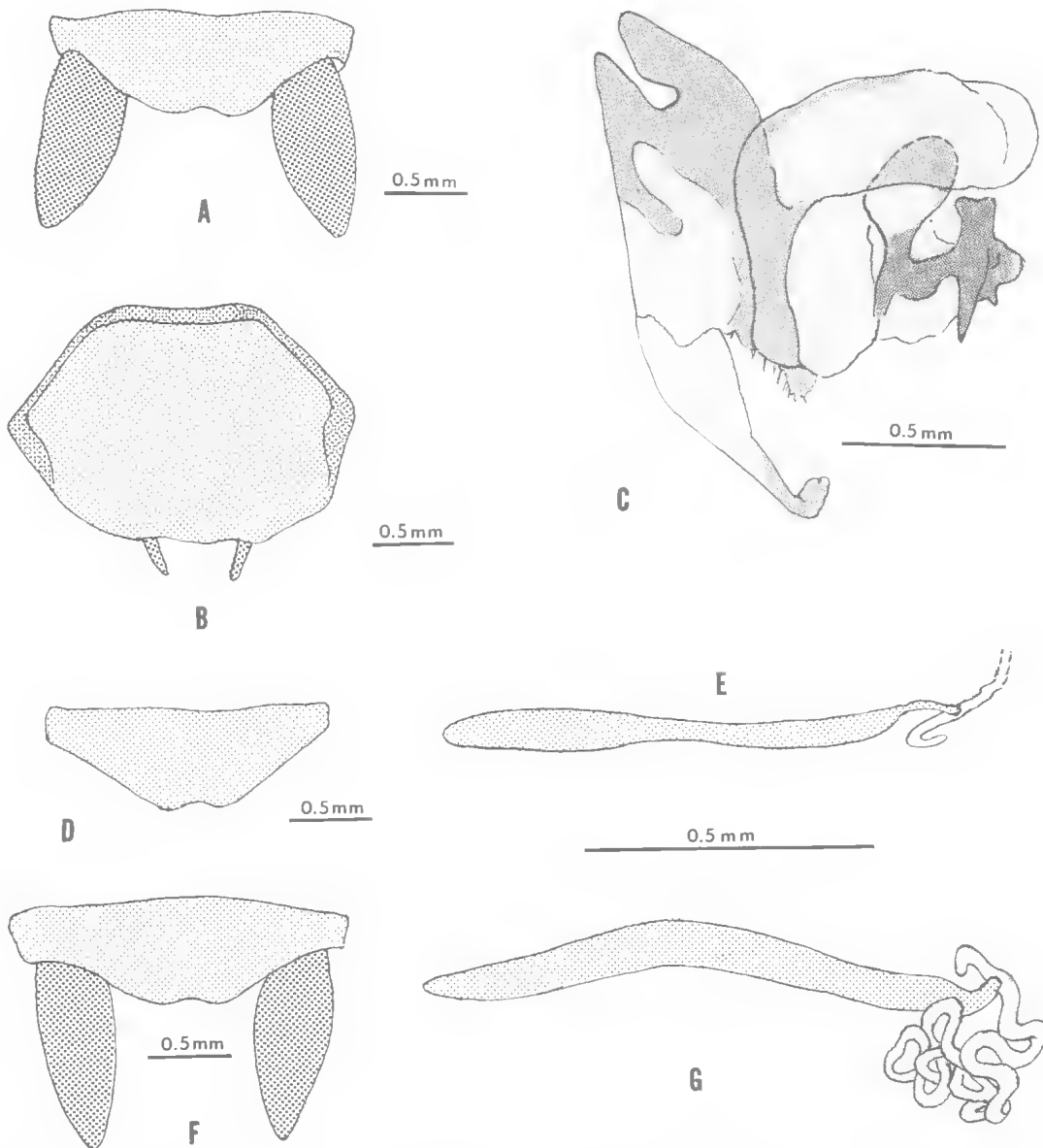


FIG. 7: *Tryonicus* sp. 1. A-C, Male (Mt. Lewis Road, via Julatten, Qld.): A, Supraanal plate; B, Subgenital plate; C, Left genital phallomere. D-G, Females: D and E, Supraanal plate and terminal portion of spermatheca (Mt. Lewis, Qld.); F and G, The same (Devils Thumb area, 10 km NW of Mossman, Qld.).

Tryonicus angusta (Chopard) n. comb.
(Fig. 8A-H)

Stylopyga angusta Chopard, 1924, p. 332, figs 63, 64
(male and female).

Neostylopyga angusta (Chopard) Princis, 1966: 540.

MATERIAL EXAMINED

SYNTYPE: ♂, Forest of Mont Ignambi, New Caledonia, 8.vii.1911, Dr. S.[arasin] and Dr. R[oux]; in the Basel Museum.

ADDITIONAL MATERIAL: New Caledonia. QMBA: All specimens were collected by G. Monteith and D. Cook: Table Unio, 700-1000 m, 2♂ (1 with slide 41), 10.v.1984; Mt. Rembai, 650 m, 1♂, 700-900 m, 2♂, 1 nymph, 9.v.1984; Mandjélia, above Pouébo, 600-750 m, 1♂, 11-13.v.1984; Mt. Do Summit, 1000 m, 1♂, 2 (1 with slide 42), 20.v.1984; Mt. Mou Summit, 1200 m, 1 (slide 43; spermatheca lost in preparation but similar to the one on slide 42), 20.v.1984.

DESCRIPTION

MALE. Dorsal surface of thorax with few, scattered, minute punctations. Pronotum strongly convex, with a shallow, median, longitudinal sulcus on posterior half. Tegmina and wings absent. First abdominal tergite unspecialized. Hind margin of T7 straight (Fig. 8A). Supraanal plate transverse, apex of hind margin rounded (Fig. 8A), shallowly concave (Fig. 8C, F), or truncate (Fig. 8E). Subgenital plate not extending beyond hind margin of supraanal plate, interstylar margin weakly convex (Fig. 8B). Front femur: anteroventral margin with 1 or 2 distal spines, posterior margin without spines; mid femur: anteroventral margin without spines or with 1 distal, posterior margin without spines; hind femur: anteroventral margin with 1 distal, posteroventral with 2 spines, none distal. Pulvilli

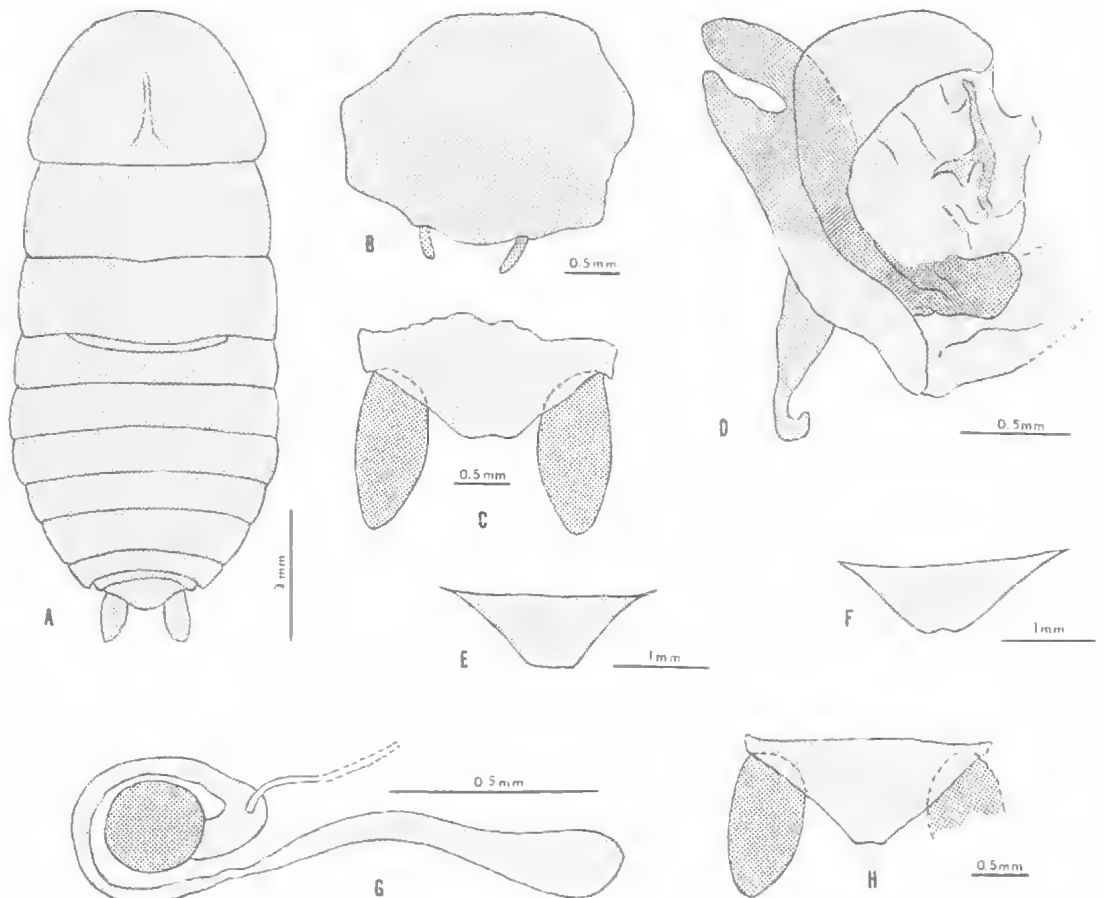


FIG. 8: *Tryonicus angusta* (Chopard) from New Caledonia. A, Male from Table Unio, habitus. B-F, Males: B-D, from Table Unio, subgenital plate, supraanal plate, and left genital phallomere, respectively; E, F, Supraanal plates from Mandjélia, and Mt. Do, respectively. G, H, Female from Mt. Do, spermatheca and supraanal plate respectively.

appear to be absent from most of the tarsal segments, but in some specimens they are recognizable on the fourth segment, and sometimes the third as well. Left genital phallomere as in Fig. 8D.

Coloration. Black or reddish brown, usually shiny. Head black, clypeus yellow. Antennae and legs reddish brown, palps brown.

FEMALE. Habitus similar to male. Supraanal plate transverse, trigonal, hind margin with (Fig. 8H) or without a shallow medial indentation. Legs similar to males with following differences in femoral armament: mid femur: posteroventral margin without or with 1 spine; hind femur: posteroventral margin with 0-2 spines. Spermatheca with a slender duct leading into a sclerotized enlarged reservoir which is very dark

and spherical at one end and somewhat lighter and club-shaped on the other (Fig. 8G).

MEASUREMENTS (mm) (= in parentheses). Body length, 10.6-13.5 (11.0-14.2); pronotum length \times width, 3.4-4.0 \times 4.1-4.8 (3.5-4.0 \times 4.3-4.8).

NYPH. A male nymph (11.5 mm) resembles the adult but its supraanal plate is more strongly trigonal with the lateral margins somewhat undulate. Body color dark brown, legs yellowish brown.

REMARKS

This is the only species of *Tryonicus* in which the males lack tegmina. *T. angusta* is close to *parvus* (absence of male tergal gland, and similarities in left male genital phallomere). The spermathecae of the two species are strikingly different.

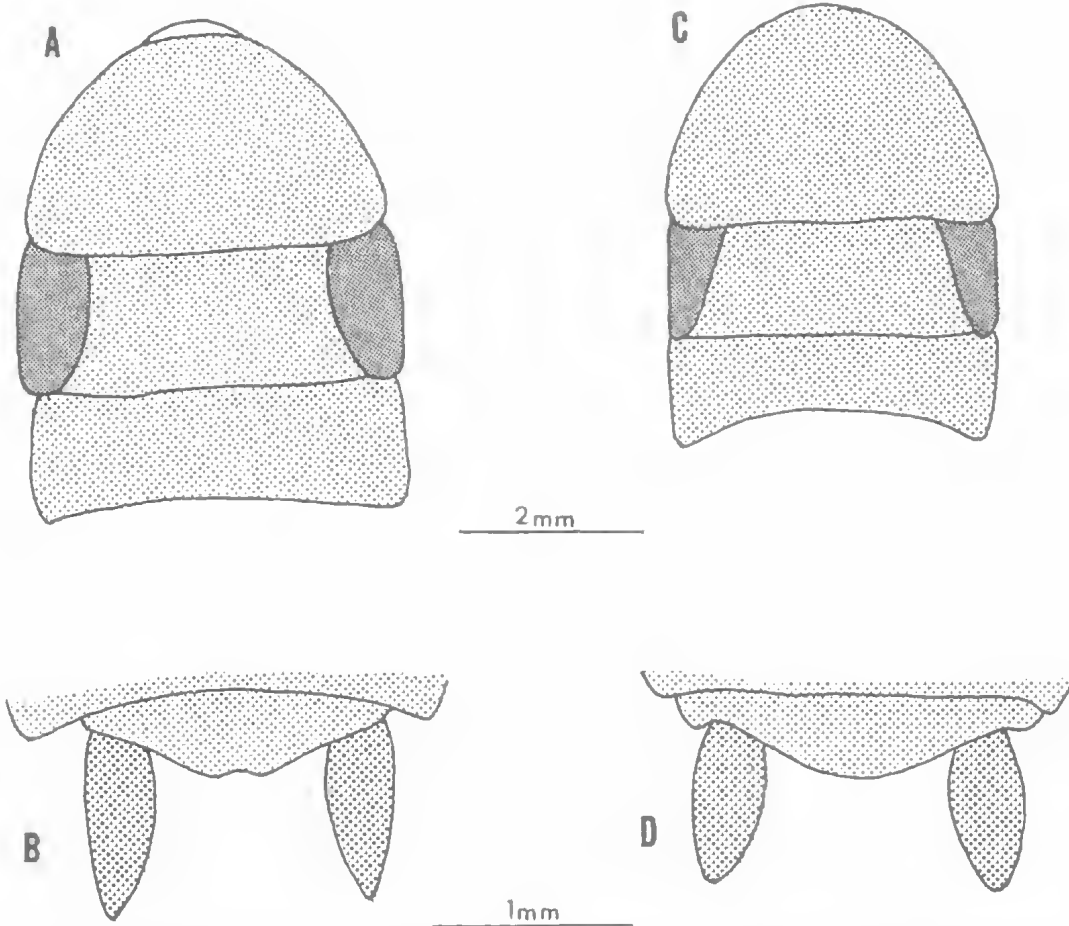


FIG. 9: A, B, *Tryonicus rufescens* (Chopard), female syntype, thorax and tegmina, and supraanal plate, respectively. C, D, *Tryonicus vicina* (Chopard), female holotype, thorax and tegmina, and supraanal plate, respectively.

Tryonicus rufescens (Chopard) n. comb.
(Fig. 9A, B)

Stylopyga rufescens Chopard, 1924, p. 333, figs 65–67 (male and female).

Neostylopyga rufescens (Chopard), Princis, 1966, p. 540.

MATERIAL EXAMINED

SYNTYPE: ♀, Ignambi, New Caledonia, vii.1911, Drs. S[arasin] R[oux]; in the Basel Museum.

DESCRIPTION

FEMALE. Tegmina with anterior border straight, posterior border convex, apex subtruncate, reaching to hind margin of mesonotum; hind margin of metanotum practically straight (Fig. 9A). Supraanal plate transverse, trigonal, apex weakly indented (Fig. 9B). The only female I have seen has the front and mid legs missing, and damaged hind legs. The anterior and posterior ventral margins of the hind femurs have 4 or 5 large spines and 1 terminal spine; the left leg has only 4 non-pubescent tarsi and the metatarsus has 2 rows of spines along the entire ventral margin.

Coloration. Reddish brown. Head dark brown, antennae, clypeus, and palps yellowish. Legs reddish.

MEASUREMENTS (mm). Length, 9.3; pronotum length \times width, 2.6 \times 4.0; tegmen length \times width, 1.7 \times 0.8.

MALE. I have not seen the male of this species. From Chopard's description, the tegmina apparently are similar to those of the female (i.e. squamiform). The supraanal plate is triangular, with hind margin subtruncate. Subgenital plate with posterior margin convex, styles rather long, close together, subacute.

Tryonicus vicina (Chopard) n. comb.
(Fig. 9C, D).

Stylopyga vicina Chopard, 1924, p. 334, figs 68, 69 (male and female).

Neostylopyga vicina (Chopard), Princis, 1966, p. 540.

MATERIAL EXAMINED

HOLOTYPE: ♀, Summit of Mont Humboldt, New Caledonia, 1600 m, 18.viii.1911 (not Nov., as indicated); in the Basel Museum.

DESCRIPTION

FEMALE. Antennae pubescent. Tegmina very narrow, inner margin straight, tapering to a subacute apex, reaching to hind margin of mesonotum; wings absent; hind margin of metanotum concave (Fig. 9C). Supraanal plate transverse, hind margin broadly rounded, not indented medially (Fig. 9D). Pulvilli and arolia

absent; tarsi pubescent. Front femur: anteroventral margin with 2 large proximal spines followed by a row of piliform setae, plus 2 terminal or distal spines; posteroventral margin with 1 distal spine. Mid femur: anteroventral margin with 2 spines on distal half, plus 1 terminal spine, posterior margin with 3 spines on distal half plus 1 terminal. Hind femur: anteroventral margin with 3 distal and no terminal spines; posterior margin with 2 distal and 1 terminal spine.

Coloration. Reddish brown. Head similar to pronotal disk. Pronotum with anterior and most of lateral borders lighter than the disk region. Antennae, palps and legs light brown.

MEASUREMENTS (mm). Length, 9.0; pronotum length \times width, 2.5 \times 3.6; tegmen length \times width, 1.6 \times 0.7.

REMARKS

According to Chopard, the male (which I have not seen) has tegmina and the concave hind margin of the metanotum, similar to the female.

ACKNOWLEDGEMENTS

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